UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|---|---|---|---|---|
| 10/001,997 | 12/05/2001 | Masahiro Suzuki | 111355 | 2835 |

25944 7590 08/24/2005

OLIFF & BERRIDGE, PLC
P.O. BOX 19928
ALEXANDRIA, VA 22320

| EXAMINER | |
|---|---|
| LAM, HUNG H | |

| ART UNIT | PAPER NUMBER |
|---|---|
| 2615 | |

DATE MAILED: 08/24/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

| Office Action Summary | Application No. | Applicant(s) | |
|---|---|---|---|
| | 10/001,997 | SUZUKI ET AL. | |
| | Examiner | Art Unit | |
| | Hung H. Lam | 2615 | |

*-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --*

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

1)☒ Responsive to communication(s) filed on *14 July 2005*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

4)☒ Claim(s) *1-44* is/are pending in the application.

4a) Of the above claim(s) *1-22* is/are withdrawn from consideration.

5)☒ Claim(s) *23-40* is/are allowed.

6)☒ Claim(s) *41-44* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

**Application Papers**

9)☒ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *05 December 2001* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

## DETAILED ACTION

### *Priority*

1. Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

### *Specification*

2. The title of the invention is not descriptive. A new title is required that is clearly indicative of the invention to which the claims are directed.

### *Claim Objections*

3. Claim 35 is objected to because of the following informalities: "An image signal processing device according to claim 31" should be changed to "A computer program product according to claim 31". Appropriate correction is required.

### *Election/Restrictions*

4. Claims 1-22 are withdrawn from further consideration pursuant to 37 CFR 1.142(b), as being drawn to a nonelected invention, there being no allowable generic or linking claim. Applicant timely traversed the restriction (election) requirement in the reply filed on 07/14/05.

5. Applicant's election with traverse of claims 23-44 in the reply filed on 07/14/05 is acknowledged. The traversal is on the ground(s) that the subject matter of all claims is

sufficiently related that a thorough search for the subject matter of any one Group of claims would encompass a search for the subject matter of the remaining claims. Thus, the search and examination of the entire application could be made without serious burden. This is not found persuasive because Inventions I, II and III are related as subcombinations disclosed as usable together in a single combination (Please refer to the restriction requirement which was mailed on 06/22/05). The subcombinations are distinct from each other if they are shown to be separately usable. In the instant case, invention III has separate utility such as an image processing device for processes an image signal comprising an average calculating unit, an average ratio calculating unit, a hue detecting unit, an area extracting unit, a white balance adjustment unit which does not include the particular listed above of any of the other group.

The requirement is still deemed proper and is therefore made FINAL.

### *Claim Rejections - 35 USC § 103*

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

7. Claims 41-42 and 44 are rejected under 35 U.S.C. 103(a) as being unpatentable over Taniguchi (US-5,619,347) in view of Takizawa (US-9,494,448).

With regarding to **claim 41**, Taniguchi discloses an image signal processing device that processes an image signal constituting a subject image captured at an image-capturing (Col. 9, Ln. 49-60), comprising:

a hue calculating unit (Fig. 10; 51; Col. 33, Ln. 30-34) that calculates a hue of each of a plurality of partition areas based upon pixel outputs from the partition areas (Figs. 6-7; Col. 24, Ln. 57-67 – Col. 25, Ln. 1-67; Taniguchi teaches that a simplified hue region numbers and value are calculated by using the RGB value of the white balance {WB} information AVE and BP; Taniguchi further teaches that the extracting unit 15 partitions a colored picture into a plurality of picture blocks and extracts the AVE {block average color data}, BP {block luminance data}, and white balance information; see Col. 9, Ln. 63-67; Col. 10, Ln. 61-67; Col. 11; Ln. 1-46).

an area extracting unit (Fig. 10; 52; Col. 33, Ln. 35-38) that extracts any area having a hue manifesting a frequency equal to or lower than a predetermined frequency value from the plurality of partition areas based upon a hue frequency distribution among the plurality of partition areas (Col. 26, Ln. 36-67 – Col. 27, Ln. 1-28; Col. 34, Ln. 33-48; Taniguchi teaches a recognizing unit 52 for recognizing any simplified hue regions with the frequencies that are greater than a variable lower limit threshold in order to decrease the white balance adjustment; Col. 34, Ln. 64-67 - Col. 35, Ln. 1-67; Taniguchi further teaches that the recognizing unit 52 classifying any simplified hue regions that are less than a variable lower limit threshold as a normal color distribution type and thereby setting the white balancing coefficient to increase the white balance adjustment; see the formulation of the variable lower limit threshold in Col. 35, Ln. 15-20); and

a white balance adjustment unit that performs a white balance adjustment based upon pixel outputs corresponding to the individual colors from the area extracting unit (Fig. 1; Col. 10, Ln. 39-60; white balance adjustment unit is interpreted as WB coefficient calculating/ storing units 22-23 and white balance adjustment unit 14; Col. 5, Ln. 5-10; Col 9, Ln. 63-67 – Col. 10, Ln. 1-8; WB adjustment is based upon the pixels output corresponding to individual color red, green, blue, cyan and magenta that are within the simplified hue region of Fig. 6).

However Taniguchi fails to teach a light-receiving surface of the image-capturing element which is divided into a plurality of partition areas.

In the same field of endeavor, Takizawa teaches a camera with a solid state imaging color system wherein a light-receiving surface of a color filter array (Fig. 1, 20) is divided by a plurality of white, green, yellow and cyan color portion (Fig. 2; Col. 3, Ln. 1-40). Takizawa further teaches that the solid-state color imaging system permits white balance to be stably maintained and makes it possible to easily adjust the hue correction (Col. 2, Ln. 38-41; Col. 8, Ln. 40-67). In light of the teaching from Takizawa, it would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the device of Taniguchi with the solid-state color imaging system having a plurality of partition areas as taught by Takizawa in order to stably maintained white balance and easily perform the hue adjustment and thereby having good reproduced colors (Takizawa; Col. 2, Ln. 38-41; Col. 8, Ln. 64-67).

With regarding to **claim 42**, Taniguchi in view of Takizawa discloses a digital camera (Takizawa; Fig. 1) having:

an image signal processing device according to claim 41 (see the rejection in claim 41); and

a recording image-capturing element (Takizawa; Figs. 1, 11) that outputs an image signal for recording the captured subject image into a recording medium (Taniguchi; Fig. 1, picture memory 12; Col. 9, Ln. 50-55), wherein:

an image signal to be used for white balance adjustment is the image signal output by the recording image-capturing element (Taniguchi; Col. 9, Ln. 55-60).

8. Claims 43 are rejected under 35 U.S.C. 103(a) as being unpatentable over Taniguchi in view of Takizawa and further in view of Takayama (US-5,473,375).

With regarding to **claim 43**, Taniguchi as modify by Takizawa discloses a digital camera (Takizawa; Fig. 1) having:

an image signal processing device according to claim 41 (see the rejection in claim 41);

a recording image-capturing element (Takizawa; Figs. 1, 11) that outputs an image signal for recording the captured subject image into a recording medium (Taniguchi; Fig. 1, picture memory 12; Col. 9, Ln. 50-55).

However Taniguchi in view of Takizawa fails to teach a photometering image-capturing element that outputs a photometering signal indicating a subject brightness level in each of photometering areas into which a photographic field is divided, wherein: an image signal to be used for white balance adjustment is the image signal output by the photometering image-capturing element.

In the same field of endeavor, Takayama teaches a camera having a photometering element (Fig. 2, 123) which measures brightness and outputs a signal to control circuit 7 in order to generate a white balance control signals to control the color balancing gain circuit (Figs. 2; control circuit 7; photometering element 123; color balancing gain circuit; steps 103-106; Col. 9, Ln. 50-55). Takayama further teaches a color meter is used to replace photometering element 123 for controling a color balance and thereby appropriate gain control signal for the balancing circuit (Fig. 4; balancing circuit 4 and 5) are obtainable (Col. 10, Ln. 55-67 – Col. 11, Ln. 1-4). In light of the teaching from Takayama, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the device of Taniguchi and Takizawa by having a color meter of Takayama in order to measure the brightness and generates an image signal to control color balance gain circuit and thereby obtaining an appropriate gain control signal for the balancing circuit (Takayama; Col. 10, Ln. 65-67 - Col. 11, Ln. 1-4).

### *Allowable Subject Matter*

9. Claims 23-40 are allowed.

The following is an examiner's statement of reasons for allowance:

The prior art of record fails to teach or fairly suggest:

Regarding independent claims 23, 29, 30 and 31, "An image signal processing device that processes an image signal constituting a subject image captured at an image-capturing element, comprising:

an average calculating unit that calculates pixel output averages for individual colors in each of a plurality of partition areas into which a light-receiving surface of the image-capturing element is divided based upon the image signal;

an average ratio calculating unit that calculates a ratio of the pixel output average corresponding to another color to the pixel output average of a reference color for each partition area;

a hue detecting unit that detects a hue of each partition area based upon the ratio of the pixel output averages;

an area extraction unit that extracts any partition area with a hue manifesting a frequency equal to or lower than a predetermined frequency value from the plurality of partition areas based upon a hue frequency distribution among the plurality of partition areas; and

a white balance adjustment unit that performs white balance adjustment based upon pixel outputs corresponding to individual colors from the extracted area" in combination with other claimed elements.

Regarding claims 24-28 and 32-40, the claims are allowed as being dependent of claims 23, 29, 30 and 31, respectively.

***Conclusion***

10. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

a) Saito (US-5,319,449) discloses a camera comprising a white balance and brightness measurement circuit.

b) Hoshuyama (US-6,906,744) discloses an electronic camera that performs: average pixel calculations, ratio of R/G and B/G calculation, skin color detection and white balance adjustment.

c) Suzuki (US-5,389,969) discloses an apparatus using brightness information from a photometering circuits to adjust white balance.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Hung H. Lam whose telephone number is 571-272-7320. The examiner can normally be reached on Monday - Friday 8AM - 5PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's primary, NGOC YEN VU can be reached on 571-272-7320. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

HL
8/22/05

NGOC YEN VU
PRIMARY EXAMINER